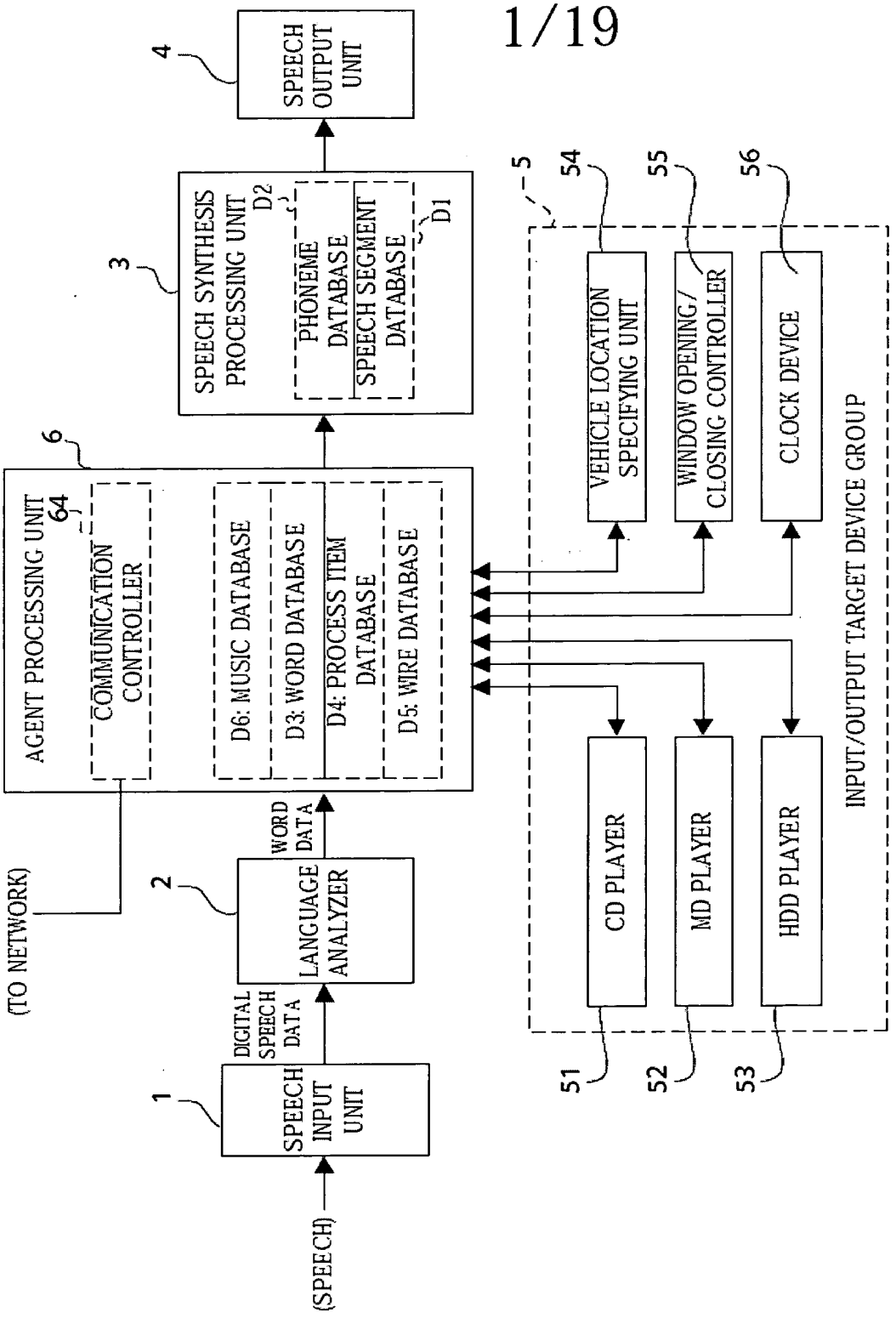

(SPEECH)
1
SPEECH INPUT UNIT
DIGITAL SPEECH DATA
2
LANGUAGE ANALYZER
WORD DATA
(TO NETWORK)
6
AGENT PROCESSING UNIT
64
COMMUNICATION CONTROLLER
D6: MUSIC DATABASE
D3: WORD DATABASE
D4: PROCESS ITEM DATABASE
D5: WIRE DATABASE
3
SPEECH SYNTHESIS PROCESSING UNIT
D2
PHONEME DATABASE
SPEECH SEGMENT DATABASE
D1
4
SPEECH OUTPUT UNIT
5
INPUT/OUTPUT TARGET DEVICE GROUP
51
CD PLAYER
52
MD PLAYER
53
HDD PLAYER
54
VEHICLE LOCATION SPECIFYING UNIT
55
WINDOW OPENING/ CLOSING CONTROLLER
56
CLOCK DEVICE

FIG.1

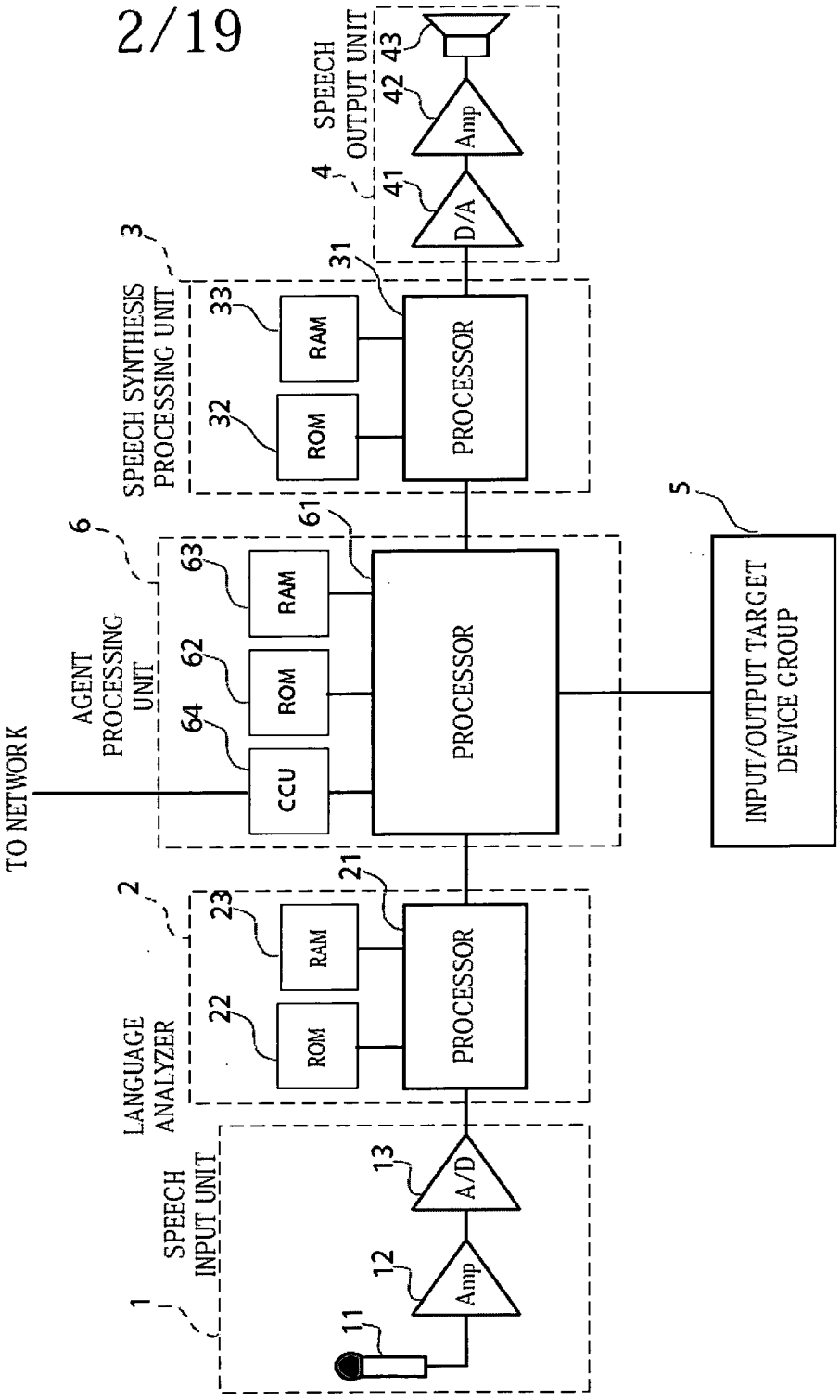

TO NETWORK
AGENT PROCESSING UNIT
6
CCU
64
ROM
62
RAM
63
PROCESSOR
61
SPEECH SYNTHESIS PROCESSING UNIT
3
ROM
32
RAM
33
PROCESSOR
31
SPEECH OUTPUT UNIT
4
D/A
41
Amp
42
43
INPUT/OUTPUT TARGET DEVICE GROUP
5
LANGUAGE ANALYZER
2
ROM
22
RAM
23
PROCESSOR
21
SPEECH INPUT UNIT
1
Amp
12
A/D
13
11

FIG.2

TITLE OF MUSIC PIECE	ARTIST	MD/CD IDENTIFYING INFORMATION	TRUCK No	TEMPO	ATTRIBUTION INFORMATION

FIG.3A

PITCH A	PRODUCTION HISTORY DATA(REPRODUCTION DATA, STOP DATA, NUISANCE DATA)
PITCH B	HISTORY DATA

FIG.3B

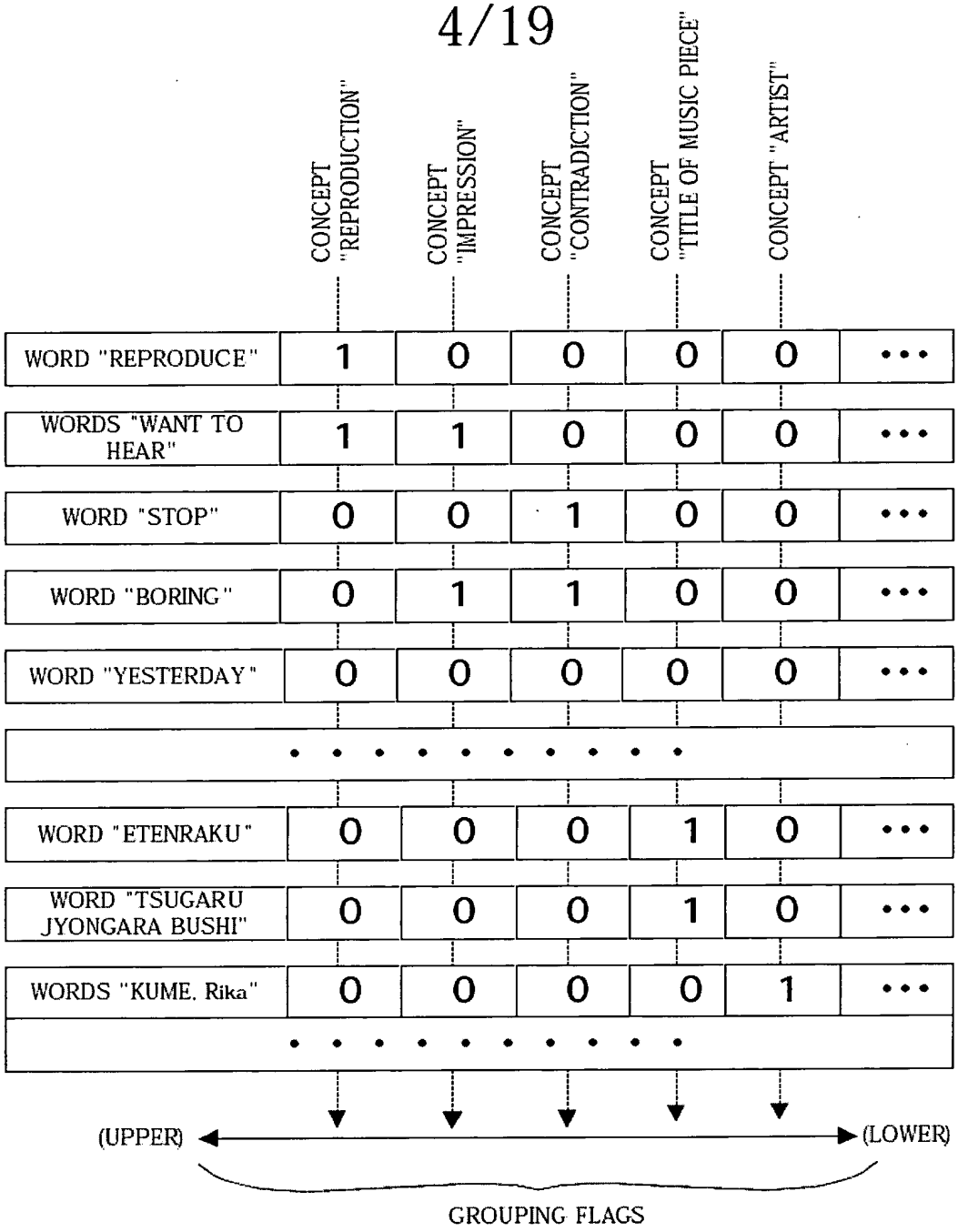

CONCEPT "REPRODUCTION"
CONCEPT "IMPRESSION"
CONCEPT "CONTRADICTION"
CONCEPT "TITLE OF MUSIC PIECE"
CONCEPT "ARTIST"
WORD "REPRODUCE" 1 0 0 0 0 • • •
WORDS "WANT TO HEAR" 1 1 0 0 0 • • •
WORD "STOP" 0 0 1 0 0 • • •
WORD "BORING" 0 1 1 0 0 • • •
WORD "YESTERDAY" 0 0 0 0 0 • • •
WORD "ETENRAKU" 0 0 0 1 0 • • •
WORD "TSUGARU JYONGARA BUSHI" 0 0 0 1 0 • • •
WORDS "KUME. Rika" 0 0 0 0 1 • • •
(UPPER)
(LOWER)
GROUPING FLAGS

FIG.4

TRIGGER ACQUISITION PROCESS SYMBOL : TG	TRANSITION CONSTANT k
TG01 : CONCEPT "REPRODUCTION"	0.8
TG02 : WORDS "LISTEN TO MD"	0.7
TG03 : WORD "STOP"	0.5
TG04 : WORD "NOISY"	0.5
⋮	⋮

FIG.5A

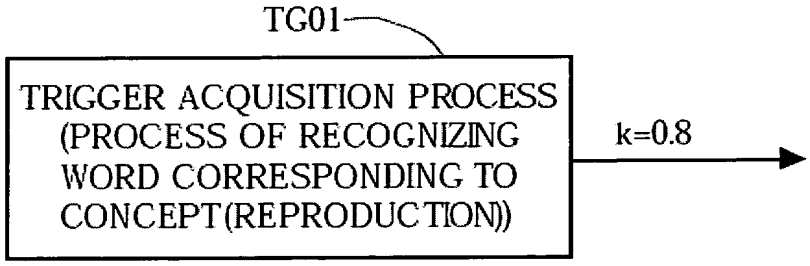


FIG.5B

DETERMINATION PROCESS SYMBOL : CNxx	TRANSITION CONSTANT k
CN01 : WINDOW OPEN?	Yes: 0.5 No: 0.5
CN02 : WHICH ONE OF MD PLAYER, CD PLAYER, AND HDD IS IN OPERATION?	MD: 0.5 CD: 0.5 HDD: 0.5
⋮	⋮

FIG.6A

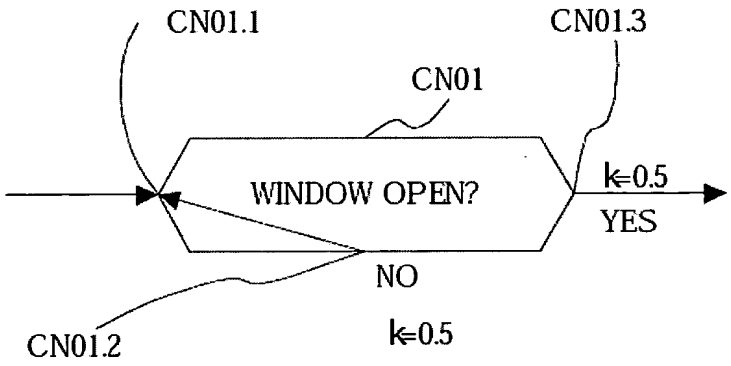


FIG.6B

DETERMINATION PROCESS(INQUIRY MADE) SYMBOL : QBxx	TRANSITION CONSTANT k
QB01 : PLAY MD? PLAY CD? PLAY HDD?	MD: 0.5 CD: 0.5 HDD: 0.5
QB02 : CLOSE WINDOW?	Yes: 0.5 No: 0.3
QB03 : TURN UP VOLUME?	Yes: 0.8 No: 0.5
⋮	⋮

FIG.7A

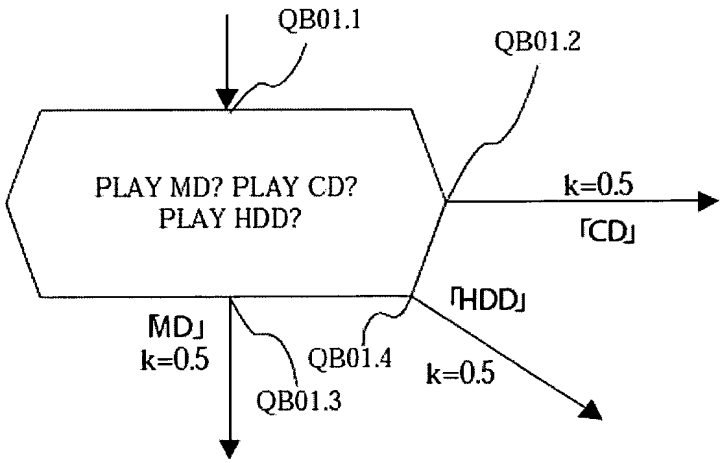


FIG.7B

OUTPUT PROCESS SYMBOL : EXxx	TRANSITION CONSTANT k
EX01 : CLOSE WINDOW	0.8
EX02 : PLAY MD	0.8
EX03 : PLAY CD	0.8
⋮	⋮

FIG.8A

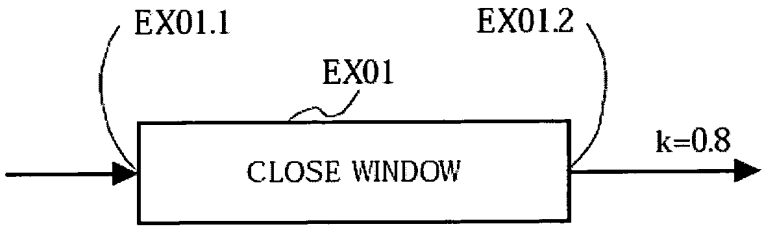


FIG.8B

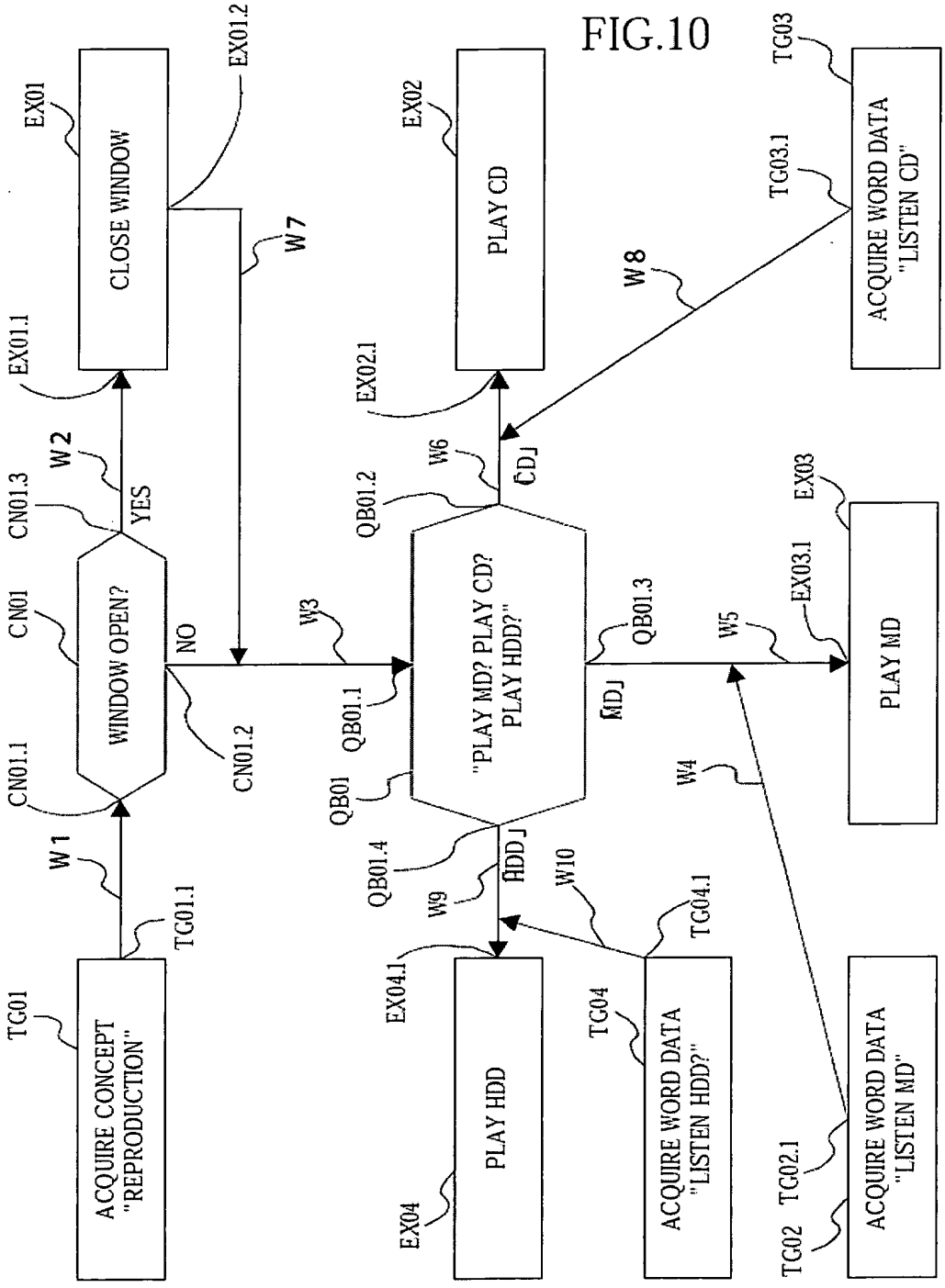
FIG.9

WIRE Wn	PRECEDING NODE	FOLLOWING NODE	WEIGHTING FACTOR J
W1	From (TG01.1)	To (CN01.1)	1.0
W2	From (CN01.3)	To (EX01.1)	0.5
W3	From (CN01.2)	To (QB01.1)	0.5
W4	From (TG02.1)	To (EX03.1)	1.0
W5	From (QB01.3)	To (EX03.1)	0.25
W6	From (QB01.2)	To (EX02.1)	0.25
W7	From (EX01.2)	To (QB01.1)	0.5
W8	From (TG03.1)	To (EX02.1)	1.0
W9	From (QB01.4)	To (EX04.1)	0.25
W10	From (TG04.1)	To (CN04.1)	1.0
W11	From (TG05.1)	To (CN02.1)	1.0
W12	From (CN02.3)	To (EX06.1)	0.5
W13	From (CN02.2)	To (EX05.1)	0.5
W14	From (CN02.4)	To (EX07.1)	0.5
W15	From (TG06.1)	To (CN03.1)	1.0
W16	From (CN03.2)	To (EX08.1)	0.5
W17	From (CN03.3)	To (EX09.1)	0.5
W18	From (CN03.4)	To (EX10.1)	0.5
W19	From (TG06.1)	To (EX11.1)	1.0
W20	From (TG07.1)	To (EX11.1)	1.0

WIRE Wn	PRECEDING NODE	FOLLOWING NODE	WEIGHTING FACTOR J
W21	From (EX11.2)	To (CN04.1)	1.0
W22	From (CN03.2)	To (EX12.1)	0.5
W23	From (CN03.3)	To (EX13.1)	0.5
W24	From (TG09.1)	To (CN05.1)	1.0
W25	From (CN05.3)	To (QB11.1)	1.0
W26	From (QB11.2)	To (QB12.1)	0.5
W27	From (QB12.2)	To (EX14.1)	0.25
W28	From (QB12.3)	To (EX15.1)	0.25
W29	From (QB12.4)	To (EX16.1)	0.25
W30	From (CN05.2)	To (QB13.1)	1.0
W31	From (QB13.2)	To (EX17.1)	0.5
W32	From (QB11.3)	To (EX14.1)	0.5
W33	From (QB11.4)	To (EX15.1)	0.5
W34	From (QB11.5)	To (EX16.1)	0.5
W35	From (QB13.3)	To (EX14.1)	0.5
W36	From (QB13.4)	To (EX15.1)	0.5
W37	From (QB13.5)	To (EX16.1)	0.5

⋮

FIG.10


ACQUIRE CONCEPT "REPRODUCTION"
TG01
TG01.1
W1
WINDOW OPEN?
CN01
CN01.1
CN01.2
CN01.3
YES
NO
W2
CLOSE WINDOW
EX01
EX01.1
EX01.2
W7
W3
"PLAY MD? PLAY CD? PLAY HDD?"
QB01
QB01.1
QB01.2
QB01.3
QB01.4
CDJ
MDJ
HDDJ
W6
W5
W4
W9
W10
PLAY CD
EX02
EX02.1
W8
ACQUIRE WORD DATA "LISTEN CD"
TG03
TG03.1
PLAY MD
EX03
EX03.1
PLAY HDD
EX04
EX04.1
ACQUIRE WORD DATA "LISTEN HDD?"
TG04
TG04.1
ACQUIRE WORD DATA "LISTEN MD"
TG02
TG02.1

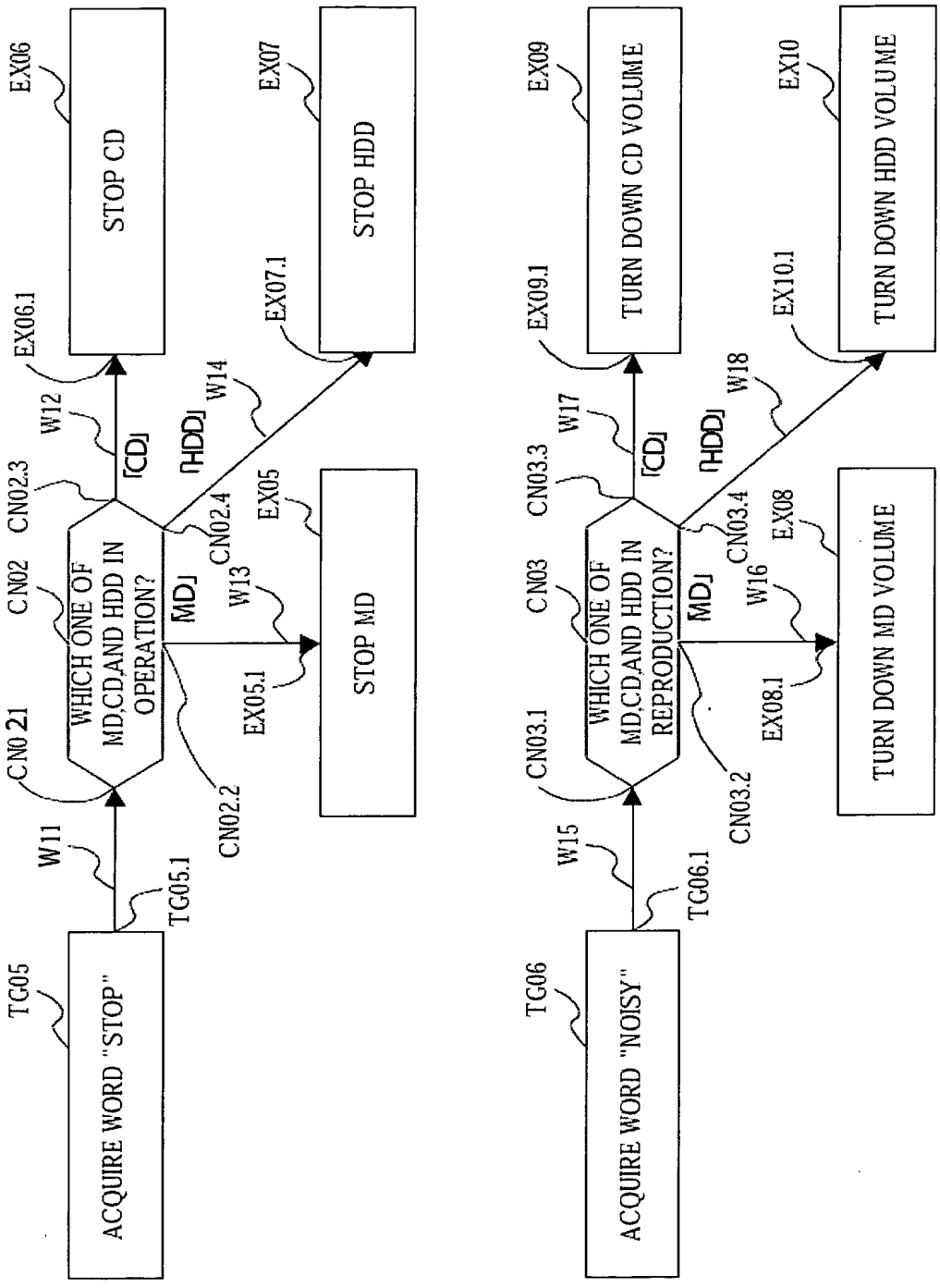

TG05
ACQUIRE WORD "STOP"
W11
TG05.1
CN0 21
WHICH ONE OF MD,CD,AND HDD IN OPERATION?
CN02
CN02.2
MDJ
W13
EX05.1
EX05
STOP MD
CN02.3
W12
「CDJ
EX06.1
EX06
STOP CD
「HDDJ
W14
CN02.4
EX07.1
EX07
STOP HDD
TG06
ACQUIRE WORD "NOISY"
W15
TG06.1
CN03.1
WHICH ONE OF MD,CD,AND HDD IN REPRODUCTION?
CN03
CN03.2
MDJ
W16
EX08.1
EX08
TURN DOWN MD VOLUME
CN03.3
W17
「CDJ
EX09.1
EX09
TURN DOWN CD VOLUME
「HDDJ
W18
CN03.4
EX10.1
EX10
TURN DOWN HDD VOLUME

FIG.11

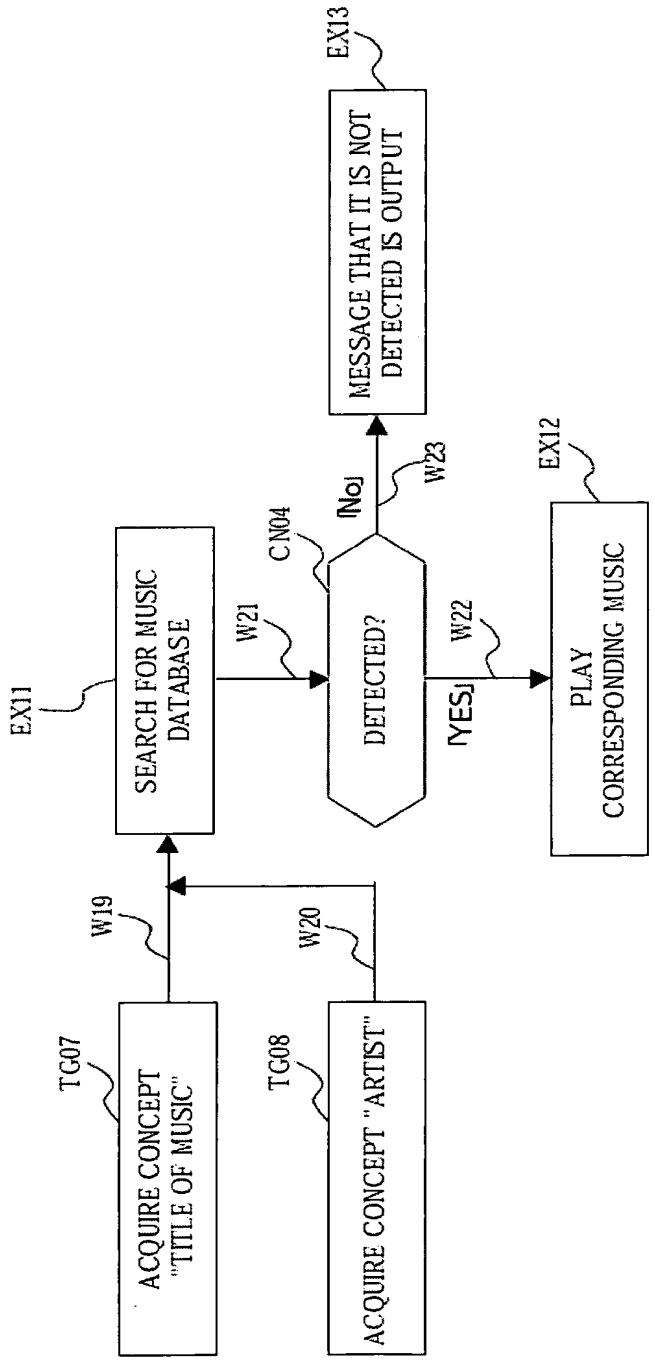

TG07
ACQUIRE CONCEPT "TITLE OF MUSIC"
TG08
ACQUIRE CONCEPT "ARTIST"
W19
W20
EX11
SEARCH FOR MUSIC DATABASE
W21
CN04
DETECTED?
W22
W23
[YES]
[No]
EX12
PLAY CORRESPONDING MUSIC
EX13
MESSAGE THAT IT IS NOT DETECTED IS OUTPUT

FIG.12

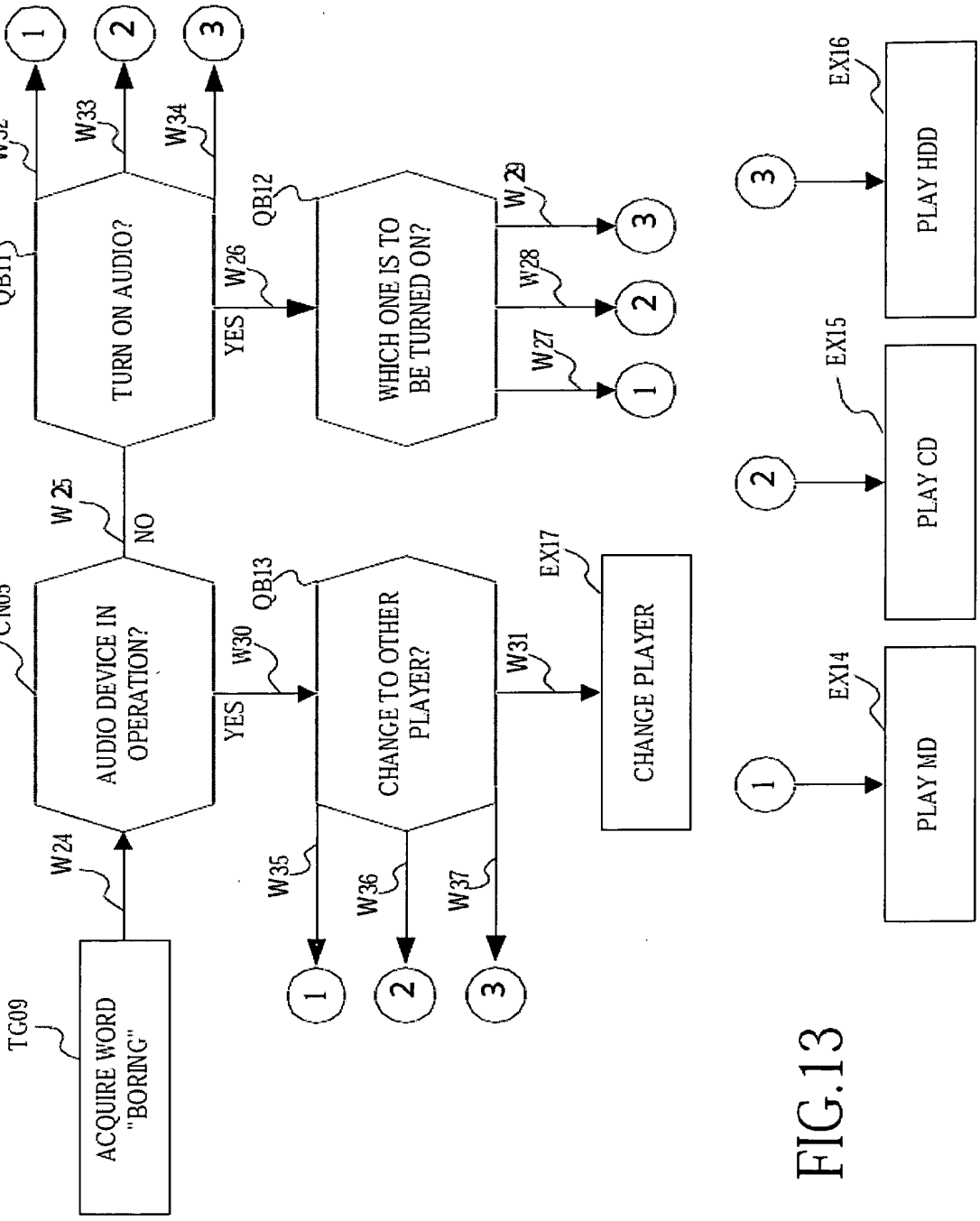

TG09
ACQUIRE WORD "BORING"
W24
CN05
AUDIO DEVICE IN OPERATION?
W25
NO
YES
W30
QB13
CHANGE TO OTHER PLAYER?
W31
EX17
CHANGE PLAYER
W35
W36
W37
1
2
3
QB11
TURN ON AUDIO?
W32
W33
W34
YES
W26
QB12
WHICH ONE IS TO BE TURNED ON?
W27
W28
W29
EX14
PLAY MD
EX15
PLAY CD
EX16
PLAY HDD

FIG.13

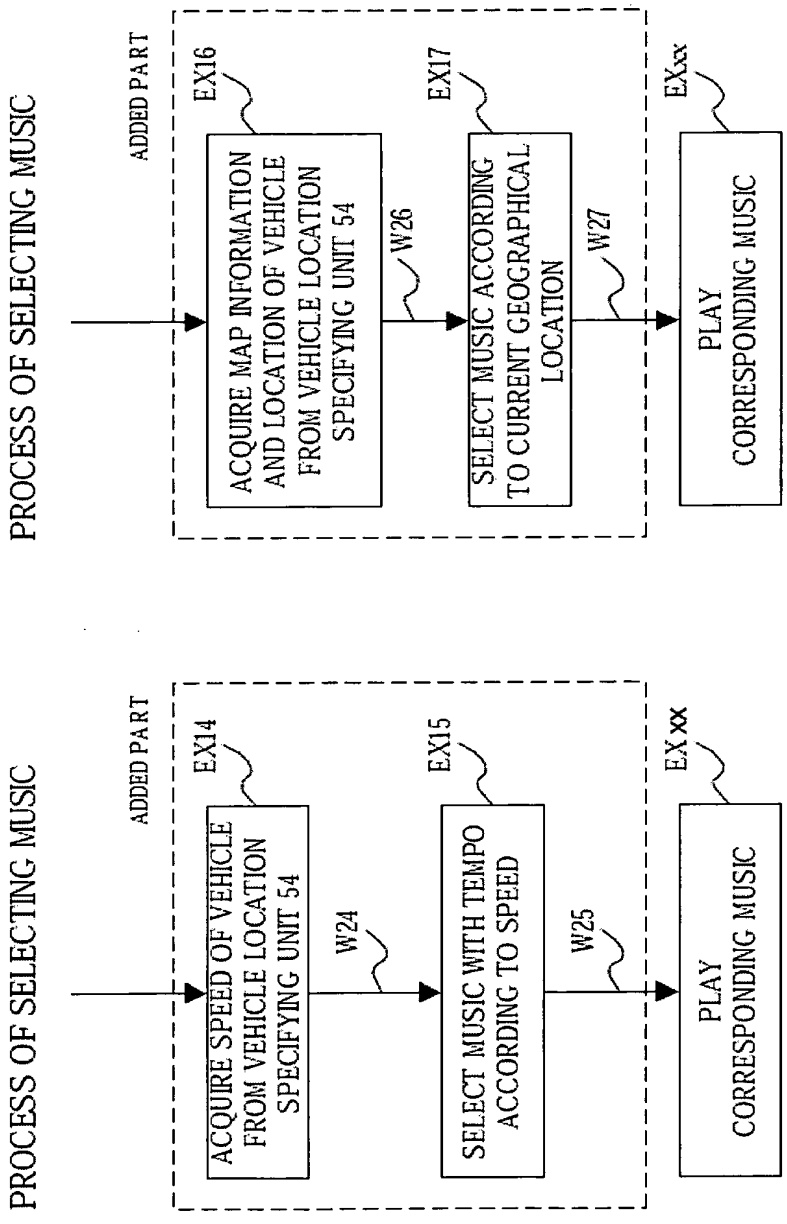


FIG.14A

FIG.14B

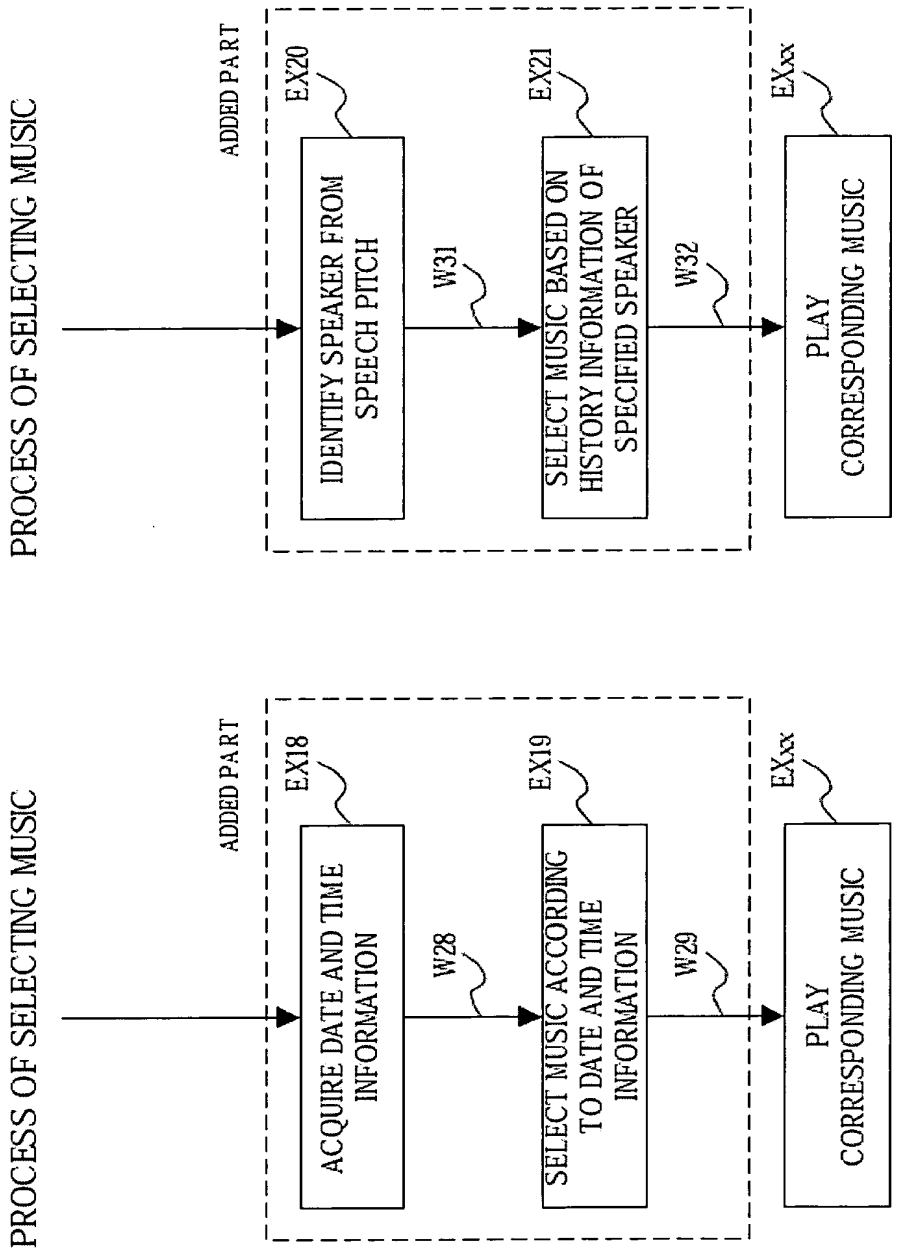


FIG.15A

FIG.15B

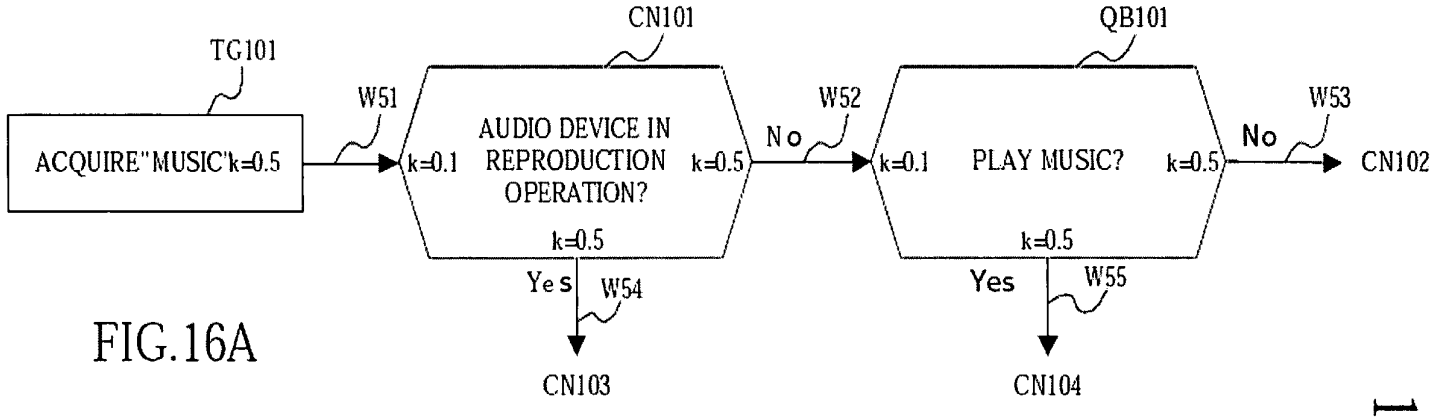


FIG.16A

W51 = From (TG101. 1) To (CN101.1)

W52 = From (CN101.3) To (QB101.1)

W53 = From (QB101.3) To (CN102.1)

W64 = From (CN101.2) To (CN103.1)

W55 = From (QB101.2) To (CN104.1)

⋮

FIG.16B

WHEN PROCESS IS IN TG101	WHEN PROCESS IS IN CN101	WHEN PROCESS IS IN QB101
W51 = 0.5	W51 = 0.1	W51 = 0.01
W52 = 0.25	W52 = 0.5	W52 = 0.1
W53 = 0.125	W53 = 0.25	W53 = 0.5
W54 = 0.25	W54 = 0.5	W54 = 0.05
W55 = 0.125	W55 = 0.25	W55 = 0.5
C-1	C-2	C-3

FIG.16C

FIG.17

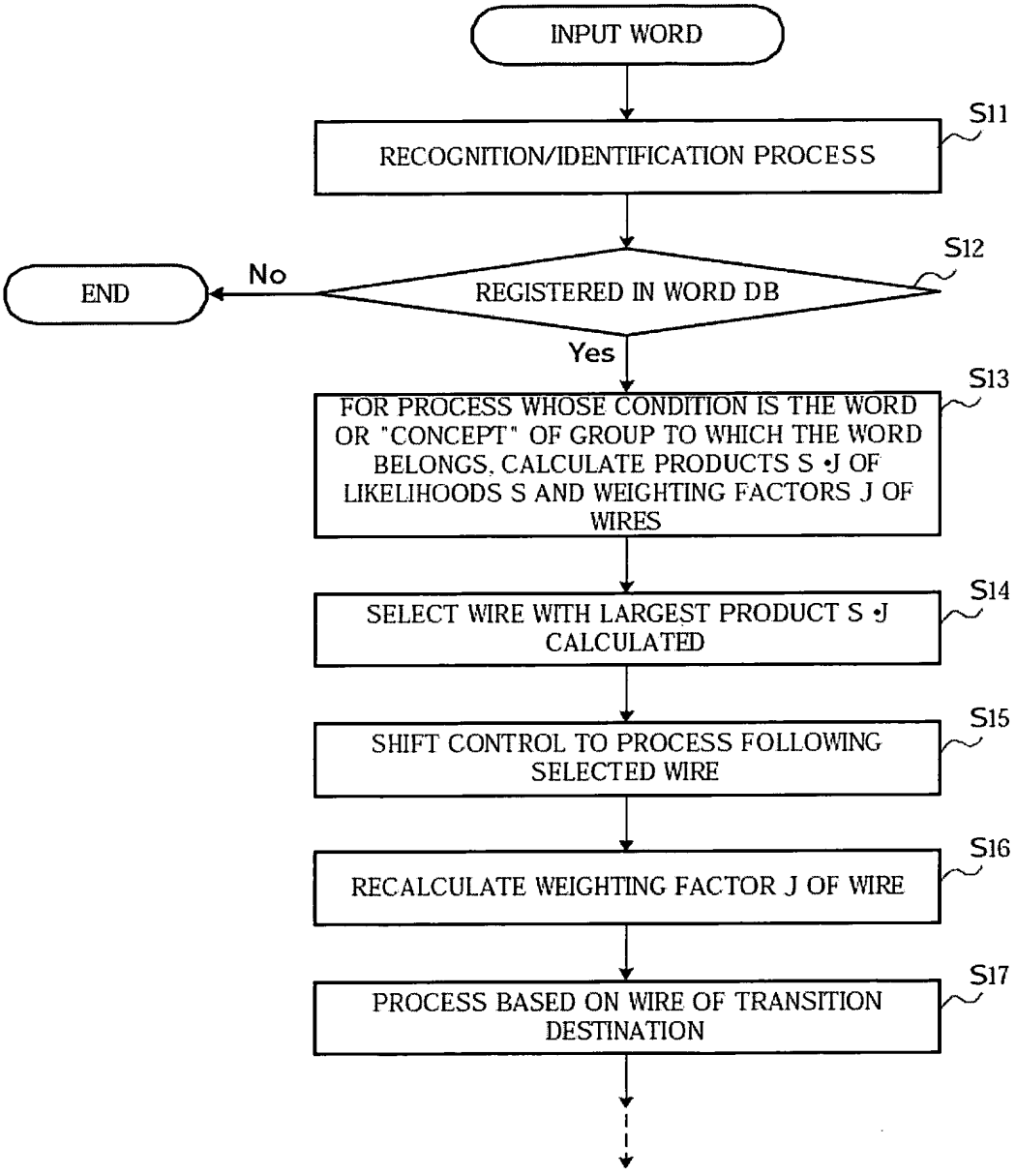
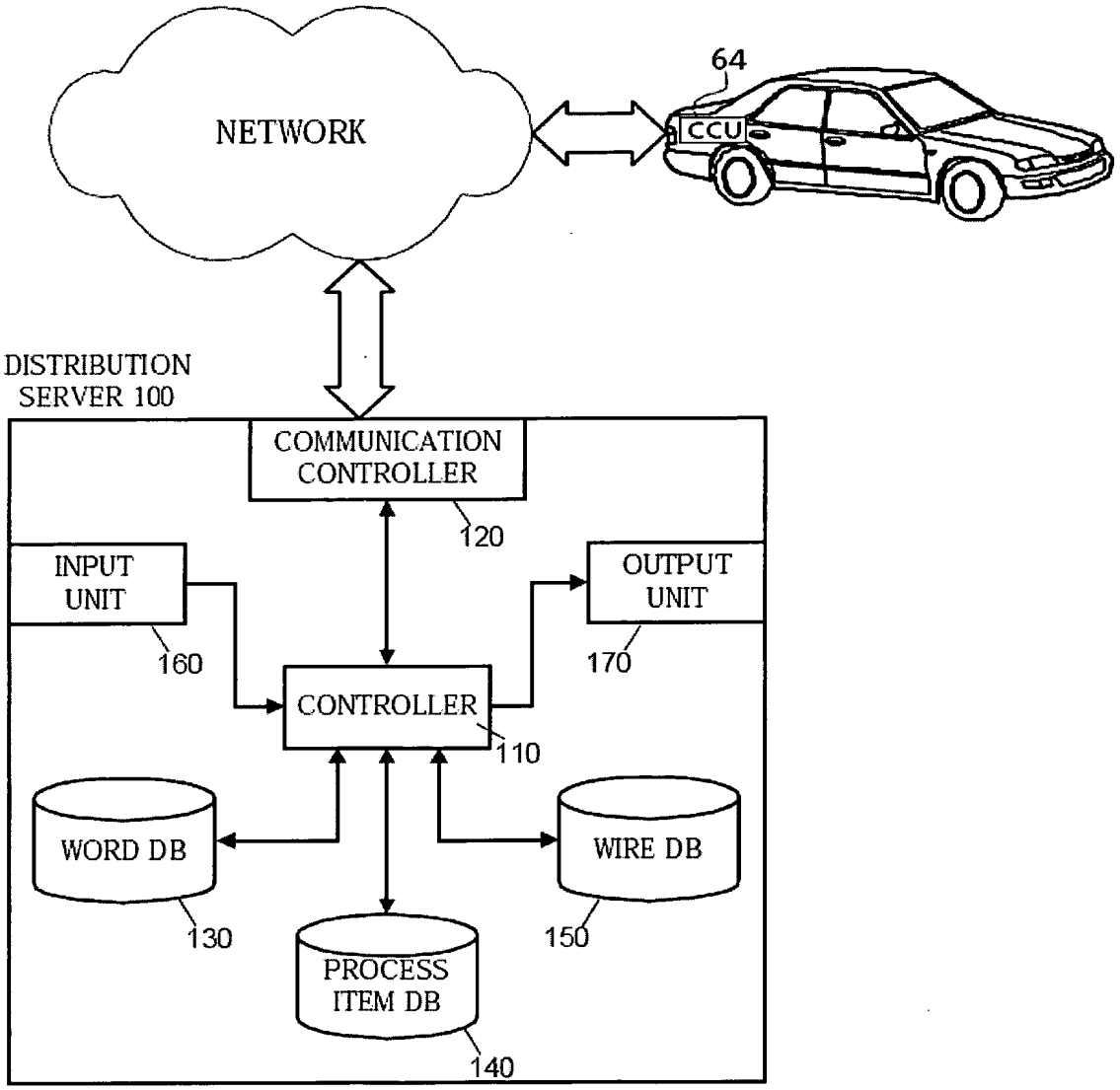

INPUT WORD
RECOGNITION/IDENTIFICATION PROCESS
S11
REGISTERED IN WORD DB
S12
No
END
Yes
FOR PROCESS WHOSE CONDITION IS THE WORD OR "CONCEPT" OF GROUP TO WHICH THE WORD BELONGS, CALCULATE PRODUCTS S •J OF LIKELIHOODS S AND WEIGHTING FACTORS J OF WIRES
S13
SELECT WIRE WITH LARGEST PRODUCT S •J CALCULATED
S14
SHIFT CONTROL TO PROCESS FOLLOWING SELECTED WIRE
S15
RECALCULATE WEIGHTING FACTOR J OF WIRE
S16
PROCESS BASED ON WIRE OF TRANSITION DESTINATION
S17

FIG.18


NETWORK
64
CCU
DISTRIBUTION SERVER 100
COMMUNICATION CONTROLLER
120
INPUT UNIT
160
OUTPUT UNIT
170
CONTROLLER
110
WORD DB
130
WIRE DB
150
PROCESS ITEM DB
140

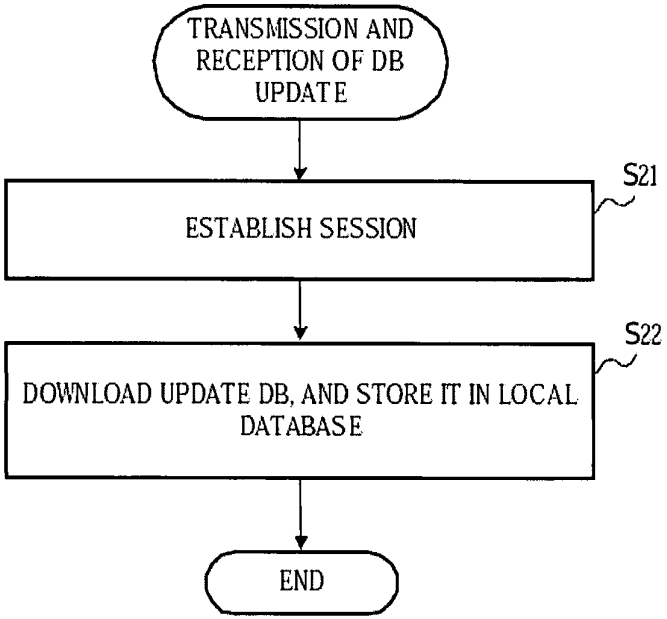


FIG.19A

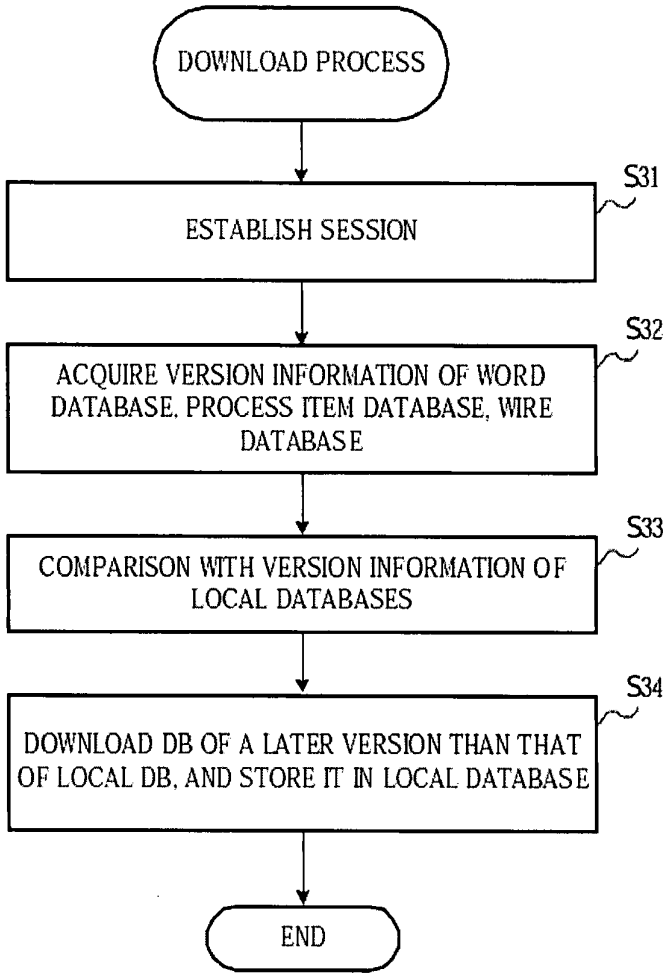


FIG.19B